"This proposal describes a unique system that, for the first time ever, will enable blind and visually impaired persons to create, edit, interpret, store, and retrieve full page braille and tactual graphic computer (CRT) displays." D.R. Maure, June 1979"

The recent release of the Monarch presents an interesting opportunity to think about the long history of research on a full-page tactile display. The AFB Archive contains three large files and the original 1979 grant proposal regarding research on such an unreleased device.

In March of 1978, Douglas Maure of the AFB Engineering Department made his first proposal. The display should be a minimum of 50x50 pin matrix to be raised and lowered in any configuration. Pins should be sized according to the Library of Congress standard. Once positioned, no power should be needed to keep the pins raised. The display must be changeable within 1 second. It will be self-contained, portable, and eventually battery powered. Design and fabrication should take 9 months, and cost a total of $28,000.

After a National Science Foundation research grant of $155,906 was issued for research in April of 1979, the name Transitory Electrically Alterable Graphic Braille Display came into use. A prototype with 3 cells and 18 pins was created. It was decided that the display would interface with many different electronic devices.

In June of 1979, it was decided that a microprocessor would raise ball bearings rather than pins. It was estimated that a 10,000 dot display would cost $10,000. The EAGBD would be intended for vocational use rather than educational.

By January of 1981, it seems that the design had gone back from ball bearing to pins, but that flat pins would be significantly cheaper to manufacture than rounded pins. In February, Emmerson Foulke at the University of Louisville and Hilda Caton at the American Printing House for the Blind were recruited to assist with research. By June of 1981, that research showed that the display might be useful for TVIs in addition to vocational settings, with tactile graphics being the biggest benefit. Additionally, early "tech" exposure to students would be beneficial.

There were notes that perhaps a single line display would cut costs significantly until the many minor technical problems of a full display could be solved. None the less, a prototype was finally delivered to the NSF to fulfill their grant agreement on November 11, 1982, and a patent disclosure was filed. The prototype display had a 16x64 dot matrix.

Discussion continued about the future of production during 1983. It was proposed that Vanderbilt University evaluate the prototypes. Tooling alone would likely cost 1 million dollars. There was debate about whether cams or a direct drive would be better. The plan was that the display could be used by any PC with AFB software, but the company was not yet sure how graphics would be created and accessed. And while there was much interest in funding and manufacturing the display, all interested parties wanted multiple working models, which would not be affordable.

Emmerson Foulke at UofL suggested that 2 sizes be produced. Programmers, he said, needed only 40 characters. While children learning to read needed a full page. Foulke warned that too much collaboration would risk a loss of control and efficiency. He also warned that the resolution of the dots would limit tangible displays.

APH Research Scientist John L. Barth performed final evaluations in Louisville in August of 1983, after 2 years of field testing had been cut. In October, 10 pre-production units were made with a 16x64, 1024 pin matrix. These cost $10,000 each, and it was expected to cost $65,000 to fully develop the display by 1984.

Paperwork begins to thin by 1985, when project leader Doug Maure passed away. Three 64x64 displays were produced for

$12,000 each and sent to the Palo Alto Veterans Administration for evaluation. More evaluation prototypes were produced in 1985, but every manufacturing company who corresponded with AFB stated that the display was not commercially viable. It was expensive, noisy, slow, bulky, and unreliable. While a 1987 document stated that the design was finalized, a manufacturer still could not be found and so ends the documentation.